REMARKS

Claim 10 has been cancelled. Claim 37 has been added to emphasize that the multi-domain, liquid crystal display of the present invention has a wide viewing angle.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Office Action states that the use of at least two methods for aligning said dry deposited layer introduces new matter into claim 1. Applicants respectfully disagree because the specification **does** contemplate the use of a combination of methods for aligning the dry deposited layer.

It is clearly contemplated that each method may be repeated numerous times in order to achieve the alignment pattern desired on the substrate. For example: "The photo-resist method may further include: repeating the covering and removing steps as needed." (p. 16, lines 25-26) It would be apparent to one skilled in the art that, based on the description provided of the present invention, a combination of the methods described may be used to achieve the alignment pattern desired. Thus, a person of ordinary skill in the art, based on the present disclosure, would use a combination of mechanical and photo-resist masks, or would irradiate the dry deposited layers by UV radiation followed by application of a mask and UV or particle bombardment.

For example, the specification provides the option of combining the methods of using a mechanical mask and methods of using photo-resist masks or layers:

> "Preferably, the step of partitioning comprises the step of covering only the first domain areas with a mask, and the step of covering comprises the step of applying a layer of photo-resist." (p. 16, lines 28-31)

Another example is provided, wherein two methods (application of UV treatment, use of a mechanical mask) are concurrently utilized to form desired domain areas having differently aligned domains. This embodiment is described on page 18, wherein the use of a mechanical mask is added as a complement to the UV method:

> "The conductive layers on the substrates are first coated with a dry deposited layer for alignment. The dry deposited layers are then exposed to UV light with a photo or mechanical mask so that the areas which are labeled UV are exposed to UV light, and the areas which labeled NUV are not exposed to UV light. The areas are then treated with ion beam bombardments. The entire dry deposited layer is bombarded by ion beam in a single direction, and no mask is required for ion beam treatment." (p. 18, lines 11-20)

Thus, this combined method combines both the mechanical mask method (use of ionic bombardment and a mask) and the UV method (UV radiation application and ionic bombardment).

Thus, the specification clearly contemplates the use of **more than one** method for aligning a dry deposited layer. Therefore, the rejection of claim 1 under 35 U.S.C. 112, first paragraph, should be withdrawn.

Claims 1 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,493,050 B1 to Lien et al. (hereinafter "Lien").

The Office Action states that Lien provides for dry depositing an alignment layer and aligning the dry deposited layer using mechanical mask (photo mask) and ridge 114 and fringe field due to gap between pixel electrodes 138. The Office Action cites Figures 1A-1B in support of this statement.

Applicant respectfully submits that there is no description by Lien of an additional step of aligning the dry deposited layer. Specifically, Lien describes the deposition of a vertical alignment layer on each substrate. There is no description in Lien of an additional step of aligning the dry deposited layer. In contrast, the present invention described an additional step of aligning the dry deposited layer, and further offers numerous methods for aligning the dry deposited layer. Further, there is no description in Lien of the use of a mechanical or photo mask to align the dry deposited layer. The only mention of a photo mask is in the context of controlling the deposition of a layer to

form dams, post spacers and ridges using a single lithographic step, for example, column 4, lines 41-42, or column 5, lines 54-62, wherein the following is stated:

> "Advantageously, layer 120 is patterned using a single photo mask and photolithographic step. When layer 120 is patterned, a portion 130 of dam 110, a portion 132 of post spacer 108 and pretilt structure 134 (in this case a ridge 114 is shown) are formed."

A photo mask is used by Lien merely to deposit structures onto the substrates. In contrast, the present invention uses a photo layer or mechanical mask to selectively bombard the alignment layer with ions to affect the alignment of the layer in those selected areas.

Clearly, Lien does not anticipate claim 1. Therefore, the rejection should be withdrawn.

The Office Action further states that Lien provides a liquid-crystal display that comprises all of the limitations of claim 9 of the present invention. Applicants respectfully disagree. The Office Action incorrectly contends that the dry deposited layers are obtained by ridge and fringe field methods. On the contrary, as described by Lien, "pretilt structures (ridges) 134 in combination with fringe field from the pixel edge are used to control the tilting direction of liquid crystal molecules . . ." (col. 6, 53-55) Thus, ridge and fringe fields are not used by Lien to affect the alignment pattern of the dry deposited layer, but rather for controlling the alignment of the liquid crystals. In contrast, the present invention discloses the use of methods including ridge and fringe field to obtain a desired alignment of the dry deposited layers.

Similarly, regarding claim 10, there is no teaching of the use of a mechanical or other mask to control the alignment of the alignment layer. As discussed above, the only use of such a mask is in depositing specific structures on the substrates. The use of masks in '050 has no bearing on the alignment of the dry deposit layer.

Accordingly, because Lien fails to disclose or suggest methods for affecting the alignment of the dry deposited layer as described in the present invention, claims 1 and 9-10 are not anticipated by Lien. Thus, the rejection of these claims should be withdrawn.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lien in view of U.S. Patent No. 6,061,114 to Callegari et al. (hereinafter "Callegari").

Applicant respectfully submits that the combination of the teachings of Lien and Callegari fails to disclose or suggest all of the limitations of these claims, as dependent on newly amended claim 9. As described above, Lien fails to disclose or suggest the use of the mechanical mask method, or any other method disclosed by the present invention, for selectively changing the alignment of the dry deposited layer.

Callegari also does not disclose the use of two or more methods as described in the present invention, for aligning the dry deposited layers. Callegari does disclose the mechanical mask method, but does not disclose the additional methods described in the present invention, namely photo-resist, UV treatment and ridge and fringe field. Furthermore, Callegari teaches away from such methods as photo-resist and UV treatment, which are described as:

"very expensive and time consuming . . . [and] contain a large number of processing steps, which creates more possibility for error, lower device yields, and increases in fabrication time and device cost." (col. 1, lines 27-33)

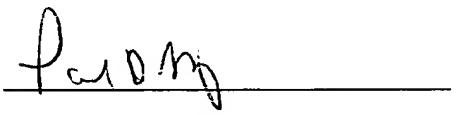
Thus, because neither Lien nor Callegari disclose all of the limitations of claims 11-13 (as dependent on newly amended claim 9), these claims are not obvious. Therefore, the rejection should be withdrawn.

Based on the above, applicants respectfully request reconsideration of the present application, withdrawal of the 35 U.S.C. §112, first paragraph rejection, the 35

U.S.C. §102(e) rejections and the 35 U.S.C. § 103(a) rejections and allowance of claims 1 and 9-13.

An early indication of the allowability of all pending claims by issuance of a Notice of Allowability is earnestly solicited.

Respectfully submitted,

Date: July 7, 2004 By: 

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